

Date: Sat, 24 Jul 93 22:16:28 PDT  
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>  
Errors-To: Info-Hams-Errors@UCSD.Edu  
Reply-To: Info-Hams@UCSD.Edu  
Precedence: Bulk  
Subject: Info-Hams Digest V93 #895  
To: Info-Hams

Info-Hams Digest                      Sat, 24 Jul 93                      Volume 93 : Issue    895

Today's Topics:

                    general class question pool  
                                Intermodulation  
                                Invitation  
                    Out of Band Mod for Kenwood TM-431A  
            Popular Electronics advertises perpetual-motion machine.  
                    Radio Shack stuff for less ?  
    STILL waiting for your license? Read this and weep! (2 msgs)  
                    VE Test Conditions

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>  
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

-----  
Date: 23 Jul 93 19:29:21 GMT  
From: ogicse!hp-cv!sdd.hp.com!vixen.cso.uiuc.edu!uwm.edu!csd4.csd.uwm.edu!  
pachner@network.ucsd.edu  
Subject: general class question pool  
To: info-hams@ucsd.edu

Did the general class question pool change on July 1, 1993, along with the  
novice and tech pools?

--  
Thomas Jay Pachner ==- Music Major, Bassist, Gamer, and Amateur Operator  
University of Wisconsin - Milwaukee - pachner@csd4.csd.uwm.edu  
Appreciator of all kinds of true music (sorry rap and country)  
Amateur Call Sign: waiting since July 10

-----

Date: 23 Jul 93 14:10:47 GMT  
From: ogicse!emory!rsiatl!ke4zv!gary@network.ucsd.edu  
Subject: Intermodulation  
To: info-hams@ucsd.edu

In article <CAKy2E.6L7@srgenprp.sr.hp.com> alanb@sr.hp.com (Alan Bloom) writes:

>Kevin Purcell, Rho (a-kevinp@microsoft.COM) wrote:

>: In response to Bob Myers KC0EW post where he says a mixer must have a  
>: non-linear component I respond:

>

>: Q: Where is the non-linear components in a doubly balanced diode or  
>: Gilbert cell mixer?

>

>This thread is starting to get a little arcane, but what the heck, there  
>are those of us who enjoy arguing how many fairies can you get on the  
>head of a pin. :=)

>

>In a linear system, the output is always a scaled and offset version  
>of the input:  $V_{out} = (A \times V_{in}) + B$ . One property of linear systems  
>is that no frequencies (other than 0 Hz DC) can appear at the output  
>that were not present at the input.

>

>In a perfect mixer, the output is the product of the two inputs:

> $V_{out} = A \times V_{rf} \times V_{lo}$  ( $V_{rf}$  = rf input signal and  $V_{lo}$  = local oscillator  
>signal). Clearly, in one sense, this is not a linear system.

>For example, if you feed the same signal into both inputs ( $V_{lo} = V_{rf}$ )

>the output is  $V_{out} = A \times V_{rf}^2$ . If  $V_{rf}$  is a signal of frequency F

>you will get out frequencies of F and 2F. (Proof left as an exercise

>for the reader :=)

Let's see the proof. :-)

In my day, we called such a circuit a \*phase detector\* and the only  
outputs for identical signals on both ports is a DC voltage proportional  
to any phase shift between the input signals, zero if they are in  
phase, and a larger copy of the input signal frequency as the two  
waveforms add constructively. If there is phase shift, you get DC  
plus a complex shaped waveform.

>However it is more accurate to describe an ideal mixer as a linear,

>but TIME-VARYING, system. The equation  $V_{out} = (C \times V_{rf})$  holds

>AT ANY INSTANT OF TIME, because at any instant of time,  $V_{lo}$  can

>be considered a constant:  $C = A \times V_{lo}$ .

>

>For example, a diode double-balanced mixer can be viewed as a switch,

>where the polarity of the rf signal is switched at a rate determined

>by the lo signal. You could implement a very LINEAR, low-distortion

>but low-frequency mixer by using fast, bounceless relays as the switch

>elements instead of diodes. The relays are either on (0 ohms) or off  
>(infinity ohms) and have no non-linear region. A truly linear mixer!  
>  
>A diode mixer tries to emulate this condition by switching the diodes  
>on and off as hard as possible. That's why high drive levels are  
>important for low distortion.

Right on. Now daddy, tell us about four quadrant multipliers and  
non-additive mixers. :-)

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

-----  
Date: 22 Jul 93 16:55:11 EDT  
From: psinnntp!arrl.org@uunet.uu.net  
Subject: Invitation  
To: info-hams@ucsd.edu

In case anyone is interested, anything you'd like to submit for possible  
publication in QST as a Strays item or for the FM column may be sent to me via  
Internet mail. Publication, of course, is not guaranteed, but I'll try to  
acknowledge anything that I get.

(Hint: I'm always looking for interesting tales about FM and repeaters for the  
FM column!)

Thanks and 73!

\*\*\*\*\*  
Brian Battles, WS10 I Tel 203-666-1541, ext 222 I "Radio amateurs  
QST Features Editor I Fax 203-665-7531 I do it with  
ARRL HQ I Internet bbattles@arrl.org I great frequency"  
Newington, CT USA I Amprnet ws10@ws10.ampr.org I  
\*\*\*\*\*

\*\*\*\*\*  
Brian Battles, WS10 I Tel 203-666-1541, ext 222 I "Radio amateurs  
QST Features Editor I Fax 203-665-7531 I do it with  
ARRL HQ I Internet bbattles@arrl.org I great frequency"  
Newington, CT USA I Amprnet ws10@ws10.ampr.org I  
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Date: Thu, 22 Jul 1993 16:17:12 GMT  
From: news.cerf.net!crash!newshub.nosc.mil!dog.ee.lbl.gov!overload.lbl.gov!agate!  
howland.reston.ans.net!gatech!kd4nc!n4tii@network.ucsd.edu  
Subject: Out of Band Mod for Kenwood TM-431A  
To: info-hams@ucsd.edu

Hi gang,

I recently performed the out-o-band mod for the Kenwood TM-431a as published  
in ArtSci's Radio Tech Mods #4.

The mod is identical to the modification on the TM-231A : ie install a diode  
at point D209.

Well, after installing the diode at D209, the display wants to read 146.000  
and it shouldn't. When installing the polarity of the diode the other way,  
the Tone-encode button functions the same as the "F" button.

Looking at the schematic, the non-usa version TM-431 has a diode in place at  
D211, which is not in place on the american version. Can someone verify if  
this is indeed the correct out-o-band mod?????

I am wanting to get the rig to receive into the 450 and 460 bands...(I am  
aware of the rules governing transmit.)

Has anyone performed such a modification on the TM-431 to get it into the 460's  
and if so, how did you do it?

Email me at : n4tii%kd4nc.uucp@gatech.edu

Or, you can just follow up here!

Thanks a lot.

John Reed, N4TII

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Date: Thu, 22 Jul 1993 18:58:17 GMT  
From: munnari.oz.au!constellation!osuunx.ucc.okstate.edu!datacomm.ucc.okstate.edu!  
martin@uunet.uu.net  
Subject: Popular Electronics advertises perpetual-motion machine.  
To: info-hams@ucsd.edu

In article <1993Jul22.082700.11493@cyphyn.UUCP> randy@cyphyn.UUCP (Randy) writes:  
>bodoh@dgg.cr.usgs.gov (Tom Bodoh) writes:  
>: In article <1993Jul21.071441.15521@pixar.com>, bruce@pixar.com (Bruce Perens)

writes:

>: |> If you see the September issue of Popular Electronics (which is on  
>: |> newsstands now) take a look at the inside front cover. It's a full-page  
>: |> ad for the new Mohawk Environmental Services "SWITCH-CHARGER". This  
>: |> amazing device allows a battery to recharge itself while at the same  
>: |> time powering a circuit!  
>: |>  
>: You mean you don't have one yet? I ordered the rapid-charge version for  
>: my HT and it now xmits 100 watts ;-)  
>:  
>: +++++  
>You got one of those too? Dog gone! I got the model C one you connect to  
>yer computer....I'm using it right now to type this.  
> I got it hooked up to a 9 volt battery which then leads to the 486 and the  
>desk lamp.  
> Haven't had an electric bill in 2 months now.  
>  
>Wait till you see the one that goes in yer car! You put a washing machine  
>moter where yer gas engine would normally go....

I got the Model H unit, suitable for powering houses. I connect  
the battery in our Toyota to it and run our house via an inverter. The darn  
thing makes so much power, I am talking to Oklahoma Gas and Electric to see  
if they will do me a favor and let me bleed down the system into the state  
power grid every so often to keep from overcharging the Toyota's battery.

Martin McCormick WB5AGZ Stillwater, OK  
O.S.U. Computer Center Data Communications Group

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Date: 22 Jul 1993 17:28:00 -0400  
From: swrinde!cs.utexas.edu!math.ohio-state.edu!howland.reston.ans.net!agate!  
library.ucla.edu!news.mic.ucla.edu!magnesium.club.cc.cmu.edu!eddie.mit.edu!  
news.intercon.com!panix!not-for-mail@  
Subject: Radio Shack stuff for less ?  
To: info-hams@ucsd.edu

In <1993Jul22.171118.1182@cbis.ece.drexel.edu> amit@lorelei.ece.drexel.edu (Amit  
Cohen) writes:

>There supposedly was a posting in this group about a company which  
>sells stuff very similar to what Radio Shack carries, but for lower  
>prices. Does anyone know the name, address and phone number of that  
>company ?  
There is Marymac, at 1-800-231-3680.

--  
Carl Oppedahl AA2KW (patent lawyer)

1992 Commerce Street #309  
Yorktown Heights, NY 10598-4412  
voice 212-777-1330

-----  
Date: Thu, 22 Jul 1993 19:13:58 GMT  
From: dog.ee.lbl.gov!overload.lbl.gov!agate!howland.reston.ans.net!  
sol.ctr.columbia.edu!usc!cs.utexas.edu!asuvax!ncar!csn!col.hp.com!news.dtc.hp.com!  
srgenprp!alanb@network.ucsd.edu  
Subject: STILL waiting for your license? Read this and weep!  
To: info-hams@ucsd.edu

Gene Wolford (genew@techbook.techbook.com) wrote:  
: After mentioning to a friend that the 8 week wait for my  
: ticket had come and gone with no ticket in sight,  
: he sent me the following (caustic) mail.  
: I initially discounted his sarcasm, but, live and learn!

[Rantings and ravings about the ARRL VEC being too slow in processing  
license applications deleted.]

One problem an organization like the ARRL has, is that the more it  
tries to do for its members (and non-members), the greater the chance  
of pissing someone off. Someone should point out that the ARRL does  
not make a dime on the VEC. This service, offered equally to members  
and non-members alike, is subsidized by the ARRL membership.

I think the ARRL is crazy to agree to take over licensing of club  
stations, as the FCC has proposed. They will get little or no  
thanks from those who use the service and will have to suffer the  
slings and arrows of outrageous indignation from anyone who feels  
their service was not up to snuff.

AL N1AL

-----  
Date: 24 Jul 1993 16:39:37 -0500  
From: cs.utexas.edu!not-for-mail@uunet.uu.net  
Subject: STILL waiting for your license? Read this and weep!  
To: info-hams@ucsd.edu

> Given that a VE Team may up to ten days at their end, add on three days  
^^^^^^^^^^

> (on average) for mailing to the VEC, and assuming that we took our  
^^^^^^^^^^

Umm. I thought those courier services that you have charge accounts with

were overnight?

> and any other document(s) for each applicant are reviewed. Nearly each  
> license copy has to be trimmed and attached to the 610, as the FCC requires.

I can't believe you're using this as part of your justification as to why  
the process takes so long! Would it not be easier to just ask everyone to  
provide a \*trimmed\* copy of their licence ???

I, for one, am willing to "take up scissors" to save a day or two. :)

Please don't take this as a flame - the ARRL VE sessions in NW Arkansas  
are professionally run and efficient (TNX WA5NRT et al).

73,

Peter Laws

N5UWY/AA

(General 6 weeks ago - when that comes I get to wait another x weeks for  
my Advanced ...)

Peter Laws | "The '90s are gonna make the '60s|plaws@uafhp.uark.edu  
n5uwy@ka5bml.ar.usa.noam| look like the '50s" --D. Hopper|plaws@uafsysb.bitnet

-----  
Date: 22 Jul 93 20:40:37 GMT  
From: psinnntp!arrl.org@uunet.uu.net  
Subject: VE Test Conditions  
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, jreece@sousa.intel.com (John Reece) writes:  
>hlester@as.arizona.edu (Howard Lester) writes:

>> ... Although I successfully passed the Extra Class license elements  
>> (hooray!), I am appalled at the noise level allowed at the two separate  
>> testing sites I attended...

>> Any other experiences? Is this common?

>You wouldn't believe. When I took the first code test the other testee  
>was allowed to bring his small child into the room and sit him at the table.  
>The child would sit quietly until the tape recorder was turned on, and then  
>he would start to fidget, squirm, grunt, sigh, and so on. I was sandbagging  
>that level a bit, so I was able to block out the distraction and pass, but  
>the father wasn't so lucky...

Oh, piss off, you whiners!N

=====

Kirk Kleinschmidt, NT0Z | Tel 203-666-1541 9-5 EST  
QST Assistant Managing Editor | Fax 203-665-7531 24 hrs  
ARRL HQ, 225 Main St, Newington, CT 06111 | BBS 203-666-0578 24 hrs  
e-mail: kirk@arrl.org | GEnie K.KLEINSCHMI

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Date: 23 Jul 93 13:45:53 GMT  
From: ogicse!emory!rsiatl!ke4zv!gary@network.ucsd.edu  
To: info-hams@ucsd.edu

References <CAIqDx.F1o@fc.hp.com>, <1993Jul22.071706.4507@ke4zv.uucp>,  
<CAKJ5G.Dr0@fc.hp.com>  
Reply-To : gary@ke4zv.UUCP (Gary Coffman)  
Subject : Re: SMD rework was(Re: Alinco DJ-580 Intermod Reduction)

In article <CAKJ5G.Dr0@fc.hp.com> jayk@fc.hp.com writes:

>  
>The clay is an interesting idea. Hadn't heard about that one.  
>  
>Basically I just wanted to point out that liquefying the solder on  
>adjacent parts wasn't a good idea. Especially if there are SMT parts  
>on both sides of the board :-).

Yeah, with components on both sides of the board, speed is of the  
essence. It's usually best to use a hotter air source and work  
very quickly to prevent the heat having time to migrate through  
the board and having parts drop off the other side. You never  
see where they came from. I hate that. :-)

The Pyrophen is great for this because it's infinitely throtttable  
from about 30 watts (Jr.) to practically nothing. At the high  
setting, most parts come off in under a second, without damage.  
If the part is a 64 pad monster, the old reliable Bernz-O-Matic  
torch can do a good job. But you \*really\* have to be practiced  
with this or instant charred board. The first time my GM saw  
me attacking a \$30,000 ENG camera with the torch he about freaked.  
Practice on scrap first, I'm glad I did.

Gary

--  
Gary Coffman KE4ZV | You make it, | gatech!wa4mei!ke4zv!gary  
Destructive Testing Systems | we break it. | uunet!rsiatl!ke4zv!gary  
534 Shannon Way | Guaranteed! | emory!kd4nc!ke4zv!gary  
Lawrenceville, GA 30244 | |

-----



Date: Thu, 22 Jul 1993 17:43:58 GMT  
From: portal!lhaven.UUmh.Ab.Ca!combdyn!lawrence@uunet.uu.net  
To: info-hams@ucsd.edu

References <21dmb8\$17q@usenet.INS.CWRU.Edu>, <Ne0X7B1w165w@nj8j.atl.ga.us>,  
<21JUL199321295589@erich.triumf.ca>d.re  
Subject : Re: How does an American sign in Canada?

In article <21JUL199321295589@erich.triumf.ca> bennett@erich.triumf.ca (P.Bennett) writes:

>I recall several years ago that there was some attempt to change this slightly,  
>to allow European amateurs to use all of our 2 metre band, although they would  
>only be permitted to use half of it at home. I don't know if this was legally  
>changed, but I have heard some europeans on the 146-148 area.  
>

Yeah, I suppose this would be important....since for some reason most of our  
repeaters and our Simplex call out channel are in this area.

--

--EMAIL-----	PHONE-----	FAX-----
WORK: lawrence@combdyn.com	(403)529-2162	(403)529-2516
HOME: dreamer@lhaven.uumh.ab.ca	(403)526-6019	disconnected

disclamer = (working\_for && !representing) + (Combustion Dynamics Ltd.);

Date: Thu, 22 Jul 1993 18:04:25 GMT  
From: rtech!amdahl!netcomsv!netcom.com!pineapp@decwrl.dec.com  
To: info-hams@ucsd.edu

References <1993Jul20.204810.11375@osuunx.ucc.okstate.edu>,  
<1993Jul21.135010.15960@mksol.dseg.ti.com>, <1993Jul22.072953.4605@ke4zv.uucp>w  
Subject : Re: CW in weird places

Has anyone noticed the CW during Channel 4 (KRON) San Francisco News  
commercial. Why is the CW in non-ham band? The public must be changing  
their minds about CW. At least the CW makes sense.

--

INTERNET: pineapp@netcom.com	Daniel Curry WB6STW
AMPRNET : dan@wb6stw.ampr.org [44.4.20.144]	E-:-) Ham Radio Operator
AX.25 : wb6stw@n0ary.#NOCAL.CA.USA.NA	Redwood City, CA USA

Date: Fri, 23 Jul 1993 08:10:33 GMT  
From: news.Hawaii.Edu!uhunix3.uhcc.Hawaii.Edu!jherman@ames.arpa  
To: info-hams@ucsd.edu

References <9307211625.AA20067@nms1.abb.com>,  
<1993Jul22.010330.16617@bongo.tele.com>,  
<mac.743359683@depot.cis.ksu.edu.cis.ksu.edu>3.uhcc.  
Subject : Re: List of conrties and call prefixes

Interesting that this list includes FI8 - French Indochina; FI hasn't  
existed since the French lost their Vietnamese colony in 1954.

Jeff, NH6IL

-----

Date: 23 Jul 93 00:24:10 GMT  
From: ddsww1!indep1!clifto@uunet.uu.net  
To: info-hams@ucsd.edu

References <226b9m\$kgq@jericho.mc.com>, <1993Jul19.174731.4789@pixar.com>,  
<1993Jul21.090935.29250@ke4zv.uucp>sc  
Subject : Re: SMD rework was(Re: Alinco DJ-580 Intermod Reduction)

In article <1993Jul21.090935.29250@ke4zv.uucp> gary@ke4zv.UUCP (Gary Coffman)  
writes:

>SMD rework is actually easier than reworking multi-layer through hole  
>boards. The only tools you need are a static hot air source (Pyroopen),  
>solder paste, tweezers, and a magnifier. Trying to do it with an ordinary  
>soldering iron, however, will be an exercise in frustration. Once you've  
>learned how to do surface mount rework, you'll hate to have to deal with  
>through hole boards.

I wholeheartedly disagree. First, when I was working for a startup  
company, the cheapest hot-air source we could find for the purpose was  
\$900. Second, although I've been soldering since 1963 with two cold  
solders that I know about to date, I couldn't find a way to get all the  
pins soldered, period, including touchup with a needlepoint soldering iron.  
Third, multilevel boards are not all that hard to deal with; it took me  
fully three days (in the 1970's) to become expert at removing, cleaning  
and replacing parts on ML boards without ruining vias, lifting traces,  
bridging solder points, or any of those hazards, and the solder sucker  
(my particular religion; I \_hate\_ braid!) cost all of \$15.

I will agree that Unsoldering SMT parts is easy with the air gun,  
though; but cleaning the pads for new solder paste is a pain, unlike  
cleaning multilevel board holes.

Disclaimer: maybe there's something I don't know because the people  
who supplied the air gun and training didn't know it either.

--

```
+-----+
|  Cliff Sharp  |      clifto@indep1.chi.il.us   OR  clifto@indep1.uucp   |
|  WA9PDM      |      Use whichever one works                        |
+-----+
```

-----  
Date: Thu, 22 Jul 1993 23:26:04 GMT  
From: pipex!bnr.co.uk!bmdhh130!bcars267!bcarhc!cnc291@uunet.uu.net  
To: info-hams@ucsd.edu

References <22ebdf\$9fa@orca.es.com>, <1993Jul20.030631.2039@uhura.neoucom.edu>,  
<1993Jul22.171712.24785@ttinews.tti.com>o.uk  
Subject : Re: TS50 Illegal!

So, after following this thread for the past day or so, I have  
several questions:

1. Is there, or is there not, a requirement that a given radio  
be "type-accepted" for use outside the amateur bands, regardless  
of license held? I heard some speculation that this applied to  
freq's less than 140MHz.
2. What exactly is "type-acceptance" and if there are such regulations,  
what purpose do they serve? For me as a licensed amateur as well as  
a member of a group licensed to use three frequencies in the 151 range,  
to have to buy two separate radios to transmit on seems pretty ridiculous.

73  
KD4PBO

-----  
Date: Thu, 22 Jul 1993 20:59:16 GMT  
From: olivea!sgigate!odin!chuck.dallas.sgi.com!adams@uunet.uu.net  
To: info-hams@ucsd.edu

References <1993Jul21.135010.15960@mksol.dseg.ti.com>,  
<1993Jul22.072953.4605@ke4zv.uucp>, <pineappCAKvJD.JLw@netcom.com>  
Subject : Re: CW in weird places

In article <pineappCAKvJD.JLw@netcom.com>, pineapp@netcom.com (Dan Curry) writes:

```
|> Has anyone noticed the CW during Channel 4 (KRON) San Francisco News
|> commercial. Why is the CW in non-ham band? The public must be changing
|> their minds about CW. At least the CW makes sense.
```

```
|> --
```

```
|> .-----+-----.
```

```
|> | INTERNET: pineapp@netcom.com          | Daniel Curry  WB6STW      |
|> | AMPRNET : dan@wb6stw.ampr.org [44.4.20.144] | E-:-) Ham Radio Operator |
|> | AX.25   : wb6stw@n0ary.#NOCAL.CA.USA.NA    | Redwood City, CA USA    |
|> |-----+-----|
```

Now Dan, you know better than this. to tease us and not give us the details. how fast? did you copy? inquiring minds wanna know.....

; -)

dit dit

--

"Be not too hard for life is short and nothing is given to man." - J. Baez

Chuck Adams, K5FO - CP60  
adams@sgi.com

-----  
Date: 23 Jul 93 13:28:20 GMT  
From: ogicse!emory!rsiatl!ke4zv!gary@network.ucsd.edu  
To: info-hams@ucsd.edu

References <CAH0Ir.1Hp@egr.uri.edu>, <17946@news.duke.edu>, <4279@eram.esi.COM.AU>  
Reply-To : gary@ke4zv.UUCP (Gary Coffman)  
Subject : Re: Radio Shack

In article <4279@eram.esi.COM.AU> dave@esi.COM.AU (Dave Horsfall) writes:  
>In article <17946@news.duke.edu>,  
> jbs@ee.ee.duke.edu (Joe B. Simpson) writes:  
>  
>| <Perhaps that was rude, but this is not the first instance a RS saledroif has  
>| <been to lazy to help me over the phone.  
>|  
>| Maybe he had a bunch of customers waiting?  
>  
>That depends on whether it's better to make a bunch of customers wait  
>for a single phone query, or to make the customer on the phone wait  
>for a bunch of people at the counter...

I know which way I vote. I \*hate\* it when I've driven all the way to a store for a specific item and then am kept waiting for the counter help to deal with phone calls. It's usually not too bad at RS, but HRO is the pits. Here I am standing with money in my hand, and I can't get service because the clerk is answering the constantly ringing phone. If they do that much phone business,

then they should hire full time phone staff and not annoy the  
paying customers waiting to be served.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

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End of Info-Hams Digest V93 #895

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